



SEQUENCE LISTING

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TECH CENTER 1600:2900

(1) GENERAL INFORMATION:

- (i) APPLICANT: TSYRLOVA, IRENA  
WOLPE, STEPHEN D.
- (ii) TITLE OF INVENTION: INHIBITOR OF STEM CELL PROLIFERATION AND  
USES THEREOF
- (iii) NUMBER OF SEQUENCES: 36
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: NIXON & VANDERHYE P.C.
  - (B) STREET: 1100 NORTH GLEBE ROAD
  - (C) CITY: ARLINGTON
  - (D) STATE: VIRGINIA
  - (E) COUNTRY: U.S.A.
  - (F) ZIP: 22201-4714
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: MS Word
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/832,448
  - (B) FILING DATE: 08-APR-1997
  - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/627,173
  - (B) FILING DATE: 12-APR-1996

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 13 amino acids
  - (B) TYPE: amino acid
  - (C) STANDARDS:
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide
- (iii) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Phe Pro His Ile Asp Leu Ser His Gly Ser Ala Gln Val  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 15 amino acids
  - (B) TYPE: amino acid
  - (C) STANDARDS:
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Cys	Phe	Pro	His	Phe	Asp	Leu	Ser	His	Gly	Ser	Ala	Gln	Val	Cys
1				5					10				15	

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Asp	Ala	Leu	Thr	Asn	Ala	Val	Ala	His	Val	Asp	Asp	Met	Pro	Asn	Ala
1				5				10						15	

Leu Ser Ala

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Leu	Val	Val	Tyr	Pro	Trp	Thr	Gln	Arg	Phe
1			5				10		

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Leu	Val	Val	Tyr	Pro	Trp	Thr	Gln	Arg
1			5					

(2) INFORMATION FOR SEQ ID NO:6:

- (1) SEQUENCE CHARACTERISTICS:  
  (A) LENGTH: 6 amino acids  
  (B) TYPE: amino acid  
  (C) STRANDEDNESS:  
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Leu Val Val Tyr Pro Trp Thr Gln  
1                  5

(2) INFORMATION FOR SEQ ID NO:7:

- (1) SEQUENCE CHARACTERISTICS:  
  (A) LENGTH: 7 amino acids  
  (B) TYPE: amino acid  
  (C) STRANDEDNESS:  
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Leu Val Val Tyr Pro Trp Thr  
1                  6

(2) INFORMATION FOR SEQ ID NO:8:

- (1) SEQUENCE CHARACTERISTICS:  
  (A) LENGTH: 6 amino acids  
  (B) TYPE: amino acid  
  (C) STRANDEDNESS:  
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Leu Val Val Tyr Pro Trp  
1                  5

(2) INFORMATION FOR SEQ ID NO:9:

- (1) SEQUENCE CHARACTERISTICS:  
  (A) LENGTH: 5 amino acids  
  (B) TYPE: amino acid  
  (C) STRANDEDNESS:  
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Leu Val Val Tyr Pro  
1                  5

(2) INFORMATION FOR SEQ ID NO:10:

- (1) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 7 amino acids  
    (E) TYPE: amino acid  
    (C) STRANDEDNESS:  
    (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Val Val Tyr Ser Trp Thr Gln  
1                    5

(2) INFORMATION FOR SEQ ID NO:11:

- (1) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 7 amino acids  
    (E) TYPE: amino acid  
    (C) STRANDEDNESS:  
    (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Tyr Pro Trp Thr Gln Arg Phe  
1                    5

(2) INFORMATION FOR SEQ ID NO:12:

- (1) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 6 amino acids  
    (E) TYPE: amino acid  
    (C) STRANDEDNESS:  
    (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Tyr Pro Trp Thr Gln Arg  
1                    5

(2) INFORMATION FOR SEQ ID NO:13:

- (1) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 5 amino acids  
    (E) TYPE: amino acid  
    (C) STRANDEDNESS:  
    (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Tyr Pro Trp Thr Gln  
1 5

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 5 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS:  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Arg Met Trp Met Phe Arg  
1 5

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 423 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GTGCTGTCTC CTGCGACAAA CAGCAACCTC AAGGCGCGCT GGGGTAAGGT CGGCGCGCAC	60
GCTGGGCGAGT ATGCTCTGGA GGGCTGGA AGGATGTTCC TGTCTTCCC CACCACCAA	120
ACCTACTTCG CGCACTTCCA CCTGATGCA GGTCTGCCC AGGTTAAGG CACGGGCAAG	180
AAGGTGGGCG ACCTGTTGAC CAAGGCTGTC GGGCAGCTGG AGGACATGCC CAAGGCGCT	240
TGCGGCTGCA GCGACTTCCA CGGCGCAAA GTTCGGGTGG ACCCGGTCAA CTTCAGGTC	300
CTAAGGCACT GCTGCTGCT GAGCTGGGC GGGCAGCTCC CGGCGGAGTT CAGGCGTGG	360
GTGCAGGCTT GCTGGGACAA GTTCTGCTT TCTGTGAGCA CCGTCTGAC CTCCAAATAC	420
CGT	423

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 141 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS:  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Val	Leu	Ser	Pro	Ala	Asp	Lys	Thr	Asn	Val	Lys	Ala	Ala	Trp	Gly	Lys
1				5				10						15	
Val	Gly	Ala	His	Ala	Gly	Glu	Tyr	Gly	Ala	Glu	Ala	Leu	Glu	Arg	Met
			20					25					30		
Phe	Leu	Ser	Phe	Pro	Thr	Thr	Lys	Thr	Tyr	Phe	Pro	His	Phe	Asp	Leu
		35					40					45			
Ser	His	Gly	Ser	Ala	Gln	Val	Lys	Gly	His	Gly	Lys	Lys	Val	Ala	Asp
	50					55					60				
Ala	Leu	Thr	Asn	Ala	Val	Ala	His	Val	Asp	Asp	Met	Pro	Asn	Ala	Leu
65					70					75				80	
Ser	Ala	Leu	Ser	Asp	Leu	His	Ala	His	Lys	Leu	Arg	Val	Asp	Pro	Val
			85						90					95	
Asn	Phe	Lys	Leu	Leu	Ser	His	Cys	Leu	Leu	Val	Thr	Leu	Ala	Ala	His
			100					105						110	
Leu	Pro	Ala	Glu	Phe	Thr	Pro	Ala	Val	His	Ala	Ser	Leu	Asp	Lys	Phe
		115					120					125			
Leu	Ala	Ser	Val	Ser	Thr	Val	Leu	Thr	Ser	Lys	Tyr	Arg			
	130					135					140				

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 438 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

GTGCACCTGA	CTCTGAGGA	GAAGTCTGCC	CTTACTGCC	TCTGCGGCAA	GCTGAACGTG	60
GATGAAGTTG	CTGCTGAGGC	CTGCGGCAGG	CTGCTGCTGG	TCTACCTTTG	GACCCAGAGG	120
TTCTTTGAGT	CCCTTGGGA	TCTGTCACT	CTGATCTG	TTATGGGCAA	CCCTAAGGTG	180
AAGGCTCATG	GCAAGAAAGT	GCTGGTGGC	TTAGTGAAG	GCTTGGTCA	CTGGACAAC	240
CTCAAGGGCA	CCCTTGGCA	ACTGAGTGA	CTGCACTGTG	ACAAGCTGCA	CTGGATCCT	300
GAGAACTTCA	GGTGGCTGGG	CAAGTGGT	GTCTGTGTGC	TGGCCATCA	CTTTGGCAAA	360
GAATTGAGCC	CACCAATGCA	GGTGGCTAT	CAGAAAGTGG	TGGCTGGTGT	GGCTAATGDC	420
CTGGCCACCA	AGTATCAT					438

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 146 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS:  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

```

Val His Leu Thr Pro Glu Glu Lys Ser Ala Val Thr Ala Leu Trp Gly
1           5           10           15
Lys Val Asn Val Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu
20           25           30
Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu
35           40           45
Ser Thr Pro Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly
50           55           60
Lys Lys Val Leu Gly Ala Phe Ser Asp Gly Leu Ala His Leu Asp Asn
65           70           75           80
Leu Lys Gly Thr Phe Ala Thr Leu Ser Glu Leu His Cys Asp Lys Leu
85           90           95
His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Leu Val Cys
100          105          110
Val Leu Ala His His Phe Gly Lys Glu Phe Thr Pro Pro Val Gln Ala
115          120          125
Ala Tyr Glu Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys
130          135          140
Tyr His
145
  
```

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

A) LENGTH: 141 amino acids  
 B) TYPE: amino acid  
 C) STRANDEDNESS:  
 D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

```

Val Leu Ser Gly Glu Asp Lys Ser Asn Ile Lys Ala Ala Trp Gly Lys
1           5           10           15
Ile Gly Gly His Gly Ala Glu Tyr Gly Ala Glu Ala Leu Glu Arg Met
20           25           30
Phe Ala Ser Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asp Val
35           40           45
  
```

Ser His Gly Ser Ala Gln Val Lys Gly His Gly Lys Lys Val Ala Asp  
 50 55 60  
 Ala Leu Ala Ser Ala Ala Gly His Leu Asp Asp Leu Pro Gly Ala Leu  
 65 70 75 80  
 Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val  
 85 90 95  
 Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ser His  
 100 105 110  
 His Pro Ala Asp Phe Thr Pro Ala Val His Ala Ser Leu Asp Lys Phe  
 115 120 125  
 Leu Ala Ser Val Ser Thr Val Leu Thr Ser Lys Tyr Arg  
 130 135 140

(2) INFORMATION FOR SEQ ID NO:20:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 146 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Val His Leu Thr Asp Ala Glu Lys Ala Ala Val Ser Cys Leu Trp Gly  
 1 5 10 15  
 Lys Val Asn Ser Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu  
 20 25 30  
 Val Val Tyr Pro Trp Thr Gln Arg Tyr Phe Asp Ser Phe Gly Asp Leu  
 35 40 45  
 Ser Ser Ala Ser Ala Ile Met Gly Asn Ala Lys Val Lys Ala His Gly  
 50 55 60  
 Lys Lys Val Ile Thr Ala Phe Asn Asp Gly Leu Asn His Leu Asp Ser  
 65 70 75 80  
 Leu Lys Gly Thr Phe Ala Ser Leu Ser Glu Leu His Cys Asp Lys Leu  
 85 90 95  
 His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Met Ile Val Ile  
 100 105 110  
 Val Leu Gly His His Leu Gly Lys Asp Phe Thr Pro Ala Ala Gln Ala  
 115 120 125  
 Ala Phe Gln Lys Val Val Ala Gly Val Ala Thr Ala Leu Ala His Lys  
 130 135 140  
 Tyr His  
 145



(2) INFORMATION FOR SEQ ID NO:21:

## (1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 141 amino acids  
(E) TYPE: amino acid  
(C) STRANDEDNESS:  
(D) TOPOLOGY: linear

```
(11) MOLECULE TYPE: peptide
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Val Leu Ser Ala Ala Asp Lys Ala Asn Val Lys Ala Ala Trp Gly Lys  
1 5 10 15

Val Gly Gly Glu Ala Gly Ala His Gly Ala Glu Ala Leu Glu Arg Met  
20 25 30

Phe Leu Gly Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asx Leu  
35 40 45

Ser His Gly Ser Asp Gln Val Lys Ala His Gly Gln Lys Val Ala Asp  
50 55 60

Ala Leu Thr Lys Ala Val Gly His Leu Asp Asp Leu Pro Gly Ala Leu  
65 70 75 80

Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val  
83 90 95

Asn Pro Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ala His  
101 105 110

His Pro Asp Asp Phe Asr. Pro Ser Val His Ala Ser Leu Asp Lys Phe  
115 120 125

Leu Ala Asn Val Ser Thr Val Leu Thr Ser Lys Tyr Arg  
133 135 140

## (2) INFORMATION FOR SEQ ID NO:22:

## (1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 146 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS:  
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

## (x1) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Val His Leu Ser Ala Glu Glu Lys Glu Ala Val Leu Gly Leu Trp Gly  
5 10 15

Lys Val Asn Val Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu  
20 25 30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu  
35 40 45

Ser Asn Ala Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly  
 50 55 60  
 Lys Lys Val Leu Gln Ser Phe Ser Asp Gly Leu Lys His Leu Asp Asn  
 65 70 75 80  
 Leu Lys Gly Thr Phe Ala Lys Leu Ser Glu Leu His Cys Asp Gln Leu  
 85 90 95  
 His Val Asp Pro Gln Asn Phe Arg Leu Leu Gly Asn Val Ile Val Val  
 100 105 110  
 Val Leu Ala Arg Arg Leu Gly His Asp Phe Asn Pro Asp Val Gln Ala  
 115 120 125  
 Ala Phe Gln Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys  
 130 135 140  
 Tyr His  
 145

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 23 amino acids
  - (E) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Val His Leu Ser Ala Gln Gln Lys Gln Ala Val Leu Gly Leu Trp Gly  
 1 5 10 15  
 Lys Val Asn Val Asp Gln Val  
 20

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 20 amino acids
  - (E) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Val Leu Ser Ala Ala Asp Lys Ala Asn Val Lys Ala Ala Trp Gly Lys  
 1 5 10 15  
 Val Gly Gly Gln  
 20

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Phe Pro His Glu Asn Leu Ser His Gly Ser Asp Gln Val Lys  
- 5 10

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Val Val Tyr Pro Trp Thr Gln Arg  
1 5

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Tyr Pro Trp Thr  
1

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Gly Tyr Pro Tyr  
1

(2) INFORMATION FOR SEQ ID NO:29:

- (1) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 4 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Gly Lys Pro Tyr  
1

(2) INFORMATION FOR SEQ ID NO:30:

- (1) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 4 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Gly Leu Pro Lys  
1

(2) INFORMATION FOR SEQ ID NO:31:

- (1) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Lys Met Thr Met Phe Arg  
1 5

(2) INFORMATION FOR SEQ ID NO:32:

- (1) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 8 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Val Arg Arg Met Phe Gly Gly Tyr  
1 5

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 6 amino acids  
(E) TYPE: amino acid  
(C) STRAIGHTNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Phe Leu Gly Phe Pro Thr  
1 6

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 6 amino acids  
(E) TYPE: amino acid  
(C) STRAIGHTNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:  
(A) NAME/KEY: Modified-site  
(E) LOCATION: 1  
(D) OTHER INFORMATION: /product= "position 1"  
                                  /label= Xaa  
                                  /note= "pyroGln"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Xaa Gln Gln Asp Cys Lys  
1 6

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 4 amino acids  
(E) TYPE: amino acid  
(C) STRAIGHTNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:  
(A) NAME/KEY: Modified-site  
(E) LOCATION: 1  
(D) OTHER INFORMATION: /product= "position 1"  
                                  /label= Xaa

note= "N-AcetylSer"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Xaa Asp Lys Pro  
1

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /product= "position 1"  
/label= Xaa  
note= "biotin-Phe, Phe or iodo-Phe"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4
- (D) OTHER INFORMATION: /product= "position 4"  
/label= Xaa  
note= "Phe, iodo-Phe"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Xaa Pro His Xaa Asp Leu Ser His Gly Ser Ala Gln Val  
1 5 10